



California Energy Policy: Natural Gas

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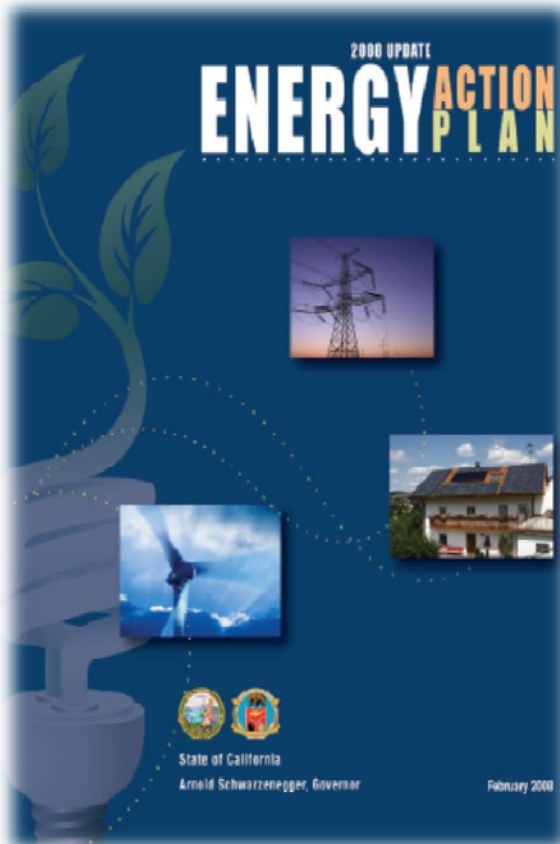
California's Transition to Natural Gas

- **California's Energy Policy - 1980's:**
 - California transitioned away from constructing nuclear generation facilities and coal fueled power plants to natural gas
 - Main drivers were cost-effectiveness and air quality issues, especially within Los Angeles Basin (large population)
 - Shift encouraged the development of natural gas fueled Cogeneration/Combined Heat and Power systems throughout California
 - **Benefits:** more efficient electricity production and reduced air emissions (pollutants)



California's Energy Policy *Loading Order*

In 2003, California's *Energy Action Plan* defined a loading order to address the state's increasing energy needs



1. Energy efficiency & Demand Response
2. Renewable Energy & Distributed Generation
3. Clean fossil-fueled sources & infrastructure improvements

This strategy benefits CA by reducing Greenhouse Gas emissions and diversifying energy sources.



Assembly Bill 32: The California Global Warming Solutions Act of 2006

- **AB 32 (2006)** - landmark legislation requiring California to reduce its greenhouse gas (GHG) emissions to 1990 levels by 2020
- **AB 32** directed the California Air Resources Board (ARB) to establish a comprehensive program of regulatory/market mechanisms to achieve real, quantifiable, cost-effective reductions of GHG. (Cap & Trade)
- In December 2008, ARB adopted the "Scoping Plan" -- California's policy blueprint containing the broad overview of programs, measures, and approaches to achieve the required GHG emission reductions.
- ARB held their first Cap & Trade Auction on Nov. 14th, 2012
 - **Allowances Sold at Auction:** 23,126,110
 - **Settlement Price Per Allowance:** \$10.09
- ARB working on updating AB 32 "Scoping Plan" which will contain information on progress made at reducing California's Greenhouse Gas emissions



California's 21st Energy Transition

- **National Trend**

- Transitioning from coal fueled power plants to natural gas fueled power plants due to low prices

- **California Trend**

- Transitioning from reliance on natural gas fueled power plants to renewable energy: self-generation & utility-scale generation
 - Need for fast-ramping and more efficient natural gas fueled power plants to integrate renewable energy sources
 - Need for more efficient on-site natural gas and/or biogas (renewable) fueled Combined Heat & Powers systems to further reduce local air pollutants and GHG emissions in energy intensive industries



Natural Gas

Ensuring Pipeline Safety

- San Bruno incident raises issues:
 - Aging infrastructure
 - Transmission pipeline pressure
 - Proper inspection & maintenance
- Investor Owned Utilities
 - Requests increase in rates to fund investments in pipeline safety improvements
 - Ongoing debate over amount of requested funds and the most effective/proper use of those funds



Los Angeles Basin

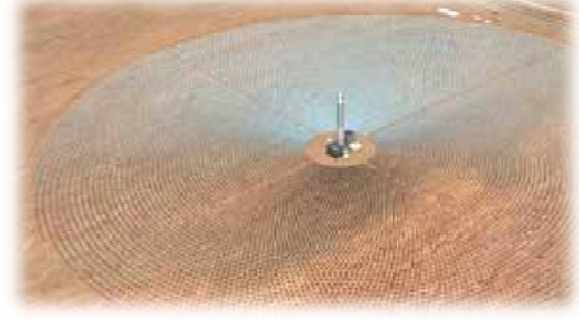
Air Quality & Transportation

- **South Coast Air Quality Management District**
 - To achieve Clean Air Act Standards LA region must move beyond combustion driven transportation
 - Continue demonstration/deployment of a zero-emission cargo container movement system.
 - Develop modified or new permitting programs to meet the region's evolving air quality and economic needs, including:
 - Incentivizing the use of new lower emitting technologies
 - Manufacturing of lower emitting and clean technologies within the region
 - Addressing availability issues associated with emission offsets for new or modified sources
 - Reducing administrative burdens



Future of Natural Gas in California

- Does Natural Gas complement or compete with renewable energy sources?
- How does California better harmonize natural gas supply and electricity production?
- Is there a role for Natural Gas in California's transportation sector compared to other alternatives?



Any Questions?

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